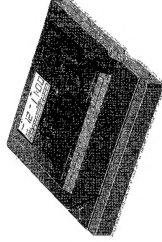


Service Service Service



Service Manual

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⚠ Varning !

Ösnylig laserstrålning när denna del är öppnad och spärren är urkopplad. Beträkta ej strålen.

⚠ Advarsel !

Ösnylig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

⚠ Varoitus !

Laite sisältyy laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilyä.

**CLASS 1
LASER PRODUCT**

*Pour votre sécurité, ces diodes ne sont pas classées en classe 1 laser dans les applications. Les produits de ce type ne sont pas considérés comme dangereux.



PHILIPS

SPECIFICATION

GENERAL:

Accu-package : SBC 6408
Type : 4 V nom.
Output voltage : 1.75 hours
Lifetime

CD-PART:

Frequency response : 20 - 20.000 Hz within 1dB
Output level : 1.2 Vrms within 2dB
S/N ratio : 80 dB min.
THD : 0.2 % max. at 1 kHz
Channel difference : 2 dB max.
Channel crosstalk : -60 dB max. at 1 kHz
Deemphasis : 0 or 15/50 μ s switched autom.
by subcode on the disc
DAC : 1 bit "BITSTREAM"

⚠ WARNING

All ICs and many other semiconductor are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

ESD

⚠ WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

⚠ ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enlever le bracelet sert d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

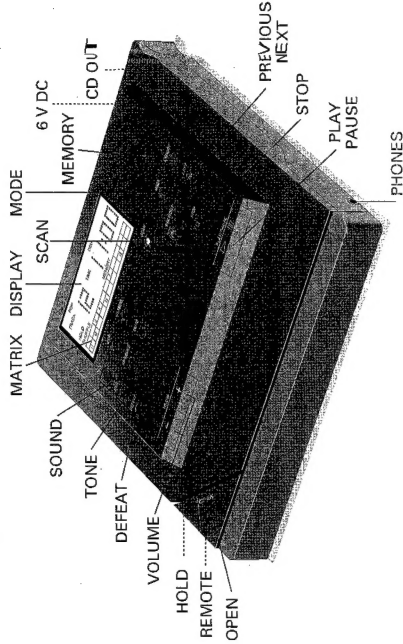
⚠ WARNING

Alle IC's und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

⚠ AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SHUT OFF FUNCTIONS, CONNECTIONS



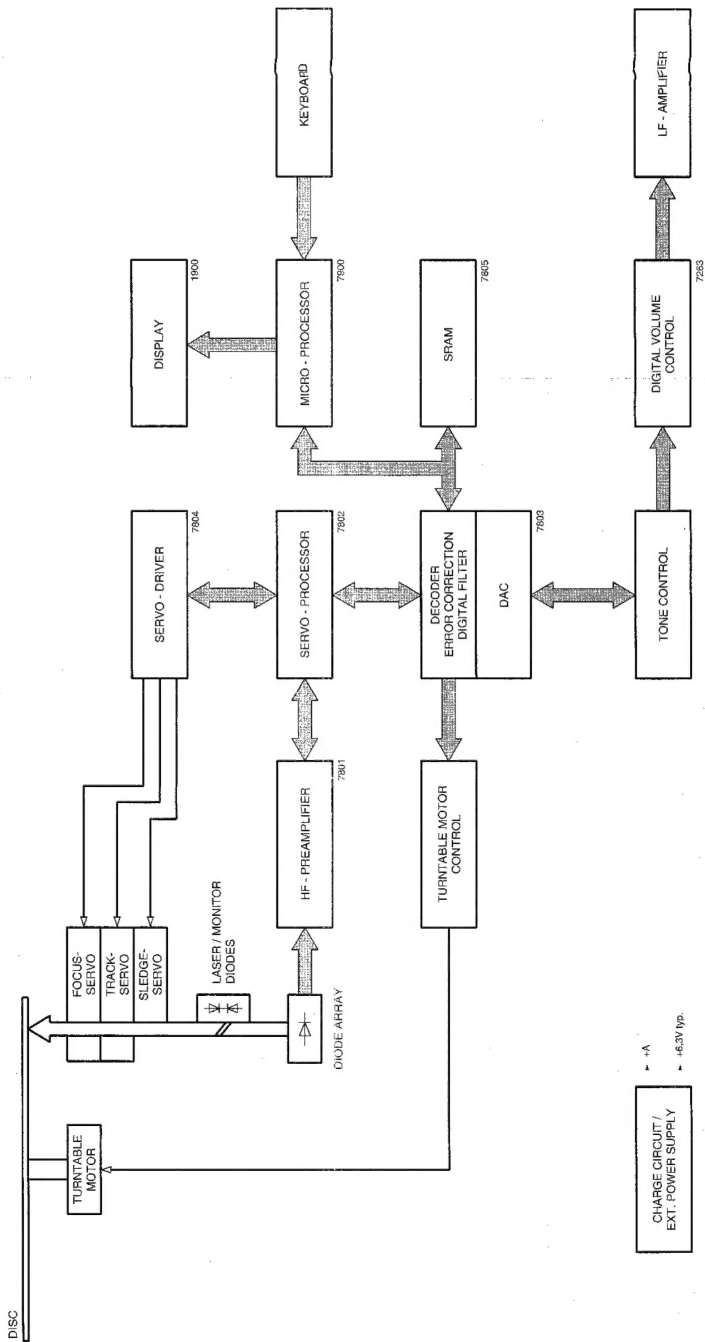
OPERATION	CONDITION	ACTION
CLOSE DOOR	POWER OFF	Power on - Start up - Read TOC - STOP - Update display-information (matrix, max. tracks on disc, length of CD)
OPEN DOOR	POWER ON/OFF	Power off - Clear display - Clear TOC - Clear program memory - Clear modes
Switch HOLD ON	POWER ON	All keys are ignored, flag hold is shown on the display. The set works normally with the wired or the IR-remote control.
SHUT OFF	STOP	The set shuts off after approx. 30s after the last physical action. All parameters (program, volume, soundfeatures) are memorized.
BATTERY WEAK	POWER ON	Battery empty indication is flashing
	POWER OFF	The set doesn't start up if PLAY is pressed. Flag battery empty is shown for 500ms.
BATTERY EMPTY	POWER ON	The set is switched off

CONNECTION	
6 V DC	Socket for the mains adaptor / battery charger: SBC 6608
PHONES	Headphone output
CD-OUT	Linear output for HiFi-systems
REMOTE	Socket for the optional IR-remote control set SBC 6208 or the wired remote control SBC 6203

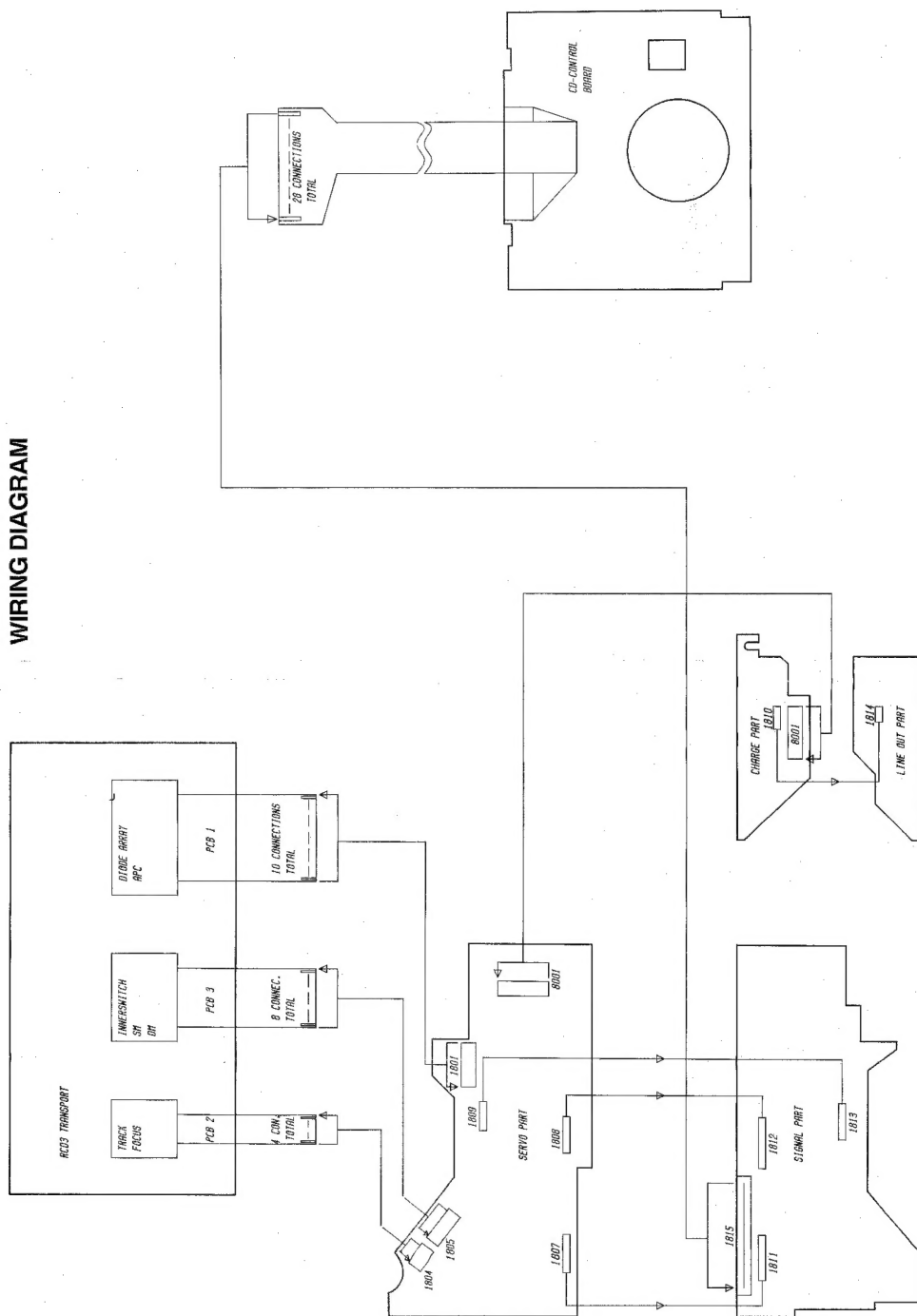
CONTROLS

KEY	CONDITION	ACTION
PLAY	POWER ON/OFF	Starts playing the 1st track, preselected track or 1st programmed track. The available tracks are shown on the matrix, the actual track is flashing.
	PLAY	Toggles between PLAY and PAUSE.
	STOP/TRACK STORED	The programmed tracknumbers are shown on the matrix. After starting up by pressing PLAY the actual tracknumber is flashing. An already played tracknumber will be cleared from the display.
	SCAN	Leaves the SCAN-mode and continues normal play.
STOP	STOP/SHUFFLE	All existing (or programmed) tracknumbers are shown on the matrix. The set starts playing the first random track. An already played tracknumber will be cleared from the matrix.
	PLAY	The set goes into STOP-mode, the display shows the TOC-informations.
	STOP	Clears the program-memory. "C" is shown on the display for 500ms.
	STOP	Tracknumber for playback can be selected. The selected track is flashing, all lower tracknumbers than the selected one are cleared from the matrix.
NEXT	PLAY	Skips forward to the next track.
	PLAY/MEMORY	Skips forward to the next stored track.
	PLAY/SHUFFLE	Skips forward to the next random-track. After reaching the last random-title a new sequence will be generated, the "shuffle-snake" is shown on the track-indication and all tracknumbers are flashing.
	PROGRAMMING	Skips forward to the next program-track.
PREV	KEY DEPRESSED FOR MORE THAN 1s.	Fast forward till the key is released, high speed after 6s (except SCAN-mode).
	STOP	Similar as NEXT, but opposite direction.
	PLAY	Skips backward to the previous track.
	PLAY/MEMORY	Skips backward to the previous stored track.
	PLAY/SHUFFLE	Skips backward to the previous random-track. After reaching the first shuffled title a new shuffle sequence will be started.
	PROGRAMMING	Skips forward to the previous program-track.
	KEY DEPRESSED FOR MORE THAN 1s.	Fast backward till the key is released, high speed after 6s (except SCAN-mode).
	PLAY/STOP	Scan starts from the first or selected track. The first 10s of the available track-numbers will be audible.
PROGRAM	PLAY/STOP	PROGRAM-mode is activated. Tracks can be selected using NEXT/PREV. Pressing PROGRAM again will store the selected tracknumber - "P" is shown on the display. A maximum of 32 tracks can be stored. If the memory has been filled up "FULL" is shown on the display. To leave the PROGRAM-mode release the keys for approx. 3s.
	REVIEW	REVIEW is activated if the PROGRAM button is depressed for more than 1s. The programmed titles will be shown on the matrix.
	PLAY/STOP	Scrolls the functions REPEAT - REPEAT ALL - SHUFFLE - SHUFFLE REPEAT. The selected operation takes place when the current title has been changed.
	PLAY/STOP	Volume up (16 steps).
VOL +	PLAY/STOP	Volume down (16 steps).
VOL -	PLAY/STOP	Soundfeatures
JAZZ, POP, CLASSIC	PLAY/STOP	This soundfeatures can be added individually.
AMB, DBB, MUTE	PLAY/STOP	Clears all soundfeatures.
DEF	PLAY/STOP	

BLOCKDIAGRAM



WIRING DIAGRAM



SERVICE TEST PROGRAM

1. PRELIMINARY SETUP

To get into the factory test program hold the keys **PLAY** & **STOP** and press **POWER** while turning the power on. The display is as shown in fig. 1. **IMPORTANT NOTES:** The door switch is ignored by software and the door can be opened during the test procedure. The laser beam is kept on during the movement of the lens. This may damage the lens. The laser beam is also kept on during the test procedure. Please take care of safety requirements!

2. SERVICE STEP 1 - SLIDE MOVEMENT

To get into the service step 1 full preliminary setup. The position of slide-motor can be defined by holding **NEXT** resp. **PREV** depressed. At the inner and outer endpoint reticelling will be audible. Stop pressing the key at this points. To get into service step 2 press the **PLAY** button.

3. SERVICE STEP 2 - LENS MOVEMENT & FOCUS SEARCH

Display is as shown in fig. 2. To start the movement of the lens and the focus search, the focus control circuit is activated. Signal 11 can be measured on pin 29 of the servo processor 7802. To check the focus search procedure insert disc and, if a focus has been found, press the **PLAY** button. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

4. SERVICE STEP 3 - TURNABLE MOTOR

Display is as shown in fig. 4. The turntable motor will start rotating, the focus control circuit is activated. To get into service step 4 press the **PLAY** button, to return to service step 1 press **STOP**.

FACTORY TEST PROGRAM

1. PRELIMINARY SETUP

To get into the factory test program hold the keys **PLAY** & **STOP** and press **POWER** while turning the power on. The display is as shown in fig. 9. **IMPORTANT NOTES:** The door switch is ignored by software and the door can be opened during the test procedure. **ATTENTION:** The laser beam is also kept emitting. Please take care of safety requirements!

2. FACTORY STEP 12 - PORTTEST 12

To get into service step 12 full preliminary setup. Porttest 1 is as shown in fig. 9. To start the movement of the lens and the focus search, the focus control circuit is activated. Signal 11 can be measured on pin 29 of the servo processor 7802. To check the focus search procedure insert disc and, if a focus has been found, press the **PLAY** button. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

3. FACTORY STEP 3 - KEYTEST

To get into service step 3 full preliminary setup. Keytest 1 is as shown in fig. 9. To start the movement of the lens and the focus search, the focus control circuit is activated. Signal 11 can be measured on pin 29 of the servo processor 7802. To check the focus search procedure insert disc and, if a focus has been found, press the **PLAY** button. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

To get into service step 4 press the **PLAY** button. To return to service step 1 press **STOP**.

To get into service step 5 press the **PLAY** button. To return to service step 1 press **STOP**.

To get into service step 6 press the **PLAY** button. To return to service step 1 press **STOP**.

SERVICE TEST PROGRAM

5. SERVICE STEP 4 - TRACKING
Display is as shown in fig. 6. All vertical segments, all sound-feature flags and the hold flags are activated. To get into service step 5 press the **PLAY** button, to return to service step 1 press **STOP**.

6. SERVICE STEP 5 - DISPLAY TEST 1
Display is as shown in fig. 6. All vertical segments, all sound-feature flags and the hold flags are activated. To get into service step 6 press the **PLAY** button, to return to service step 1 press **STOP**.

7. SERVICE STEP 6 - DISPLAY TEST 2
Display is as shown in fig. 7. All horizontal segments and all sound-feature flags are activated. To get into service step 7 press the **PLAY** button, to return to service step 1 press **STOP**.

8. SERVICE STEP 7 - DISPLAY TEST 3
Display is as shown in fig. 8. All existing segments are active. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

4. FACTORY STEP 4 - OSCILLATOR TEST
Display is as shown in fig. 9. To start the movement of the lens and the focus search, the focus control circuit is activated. Signal 11 can be measured on pin 29 of the servo processor 7802. To check the focus search procedure insert disc and, if a focus has been found, press the **PLAY** button. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

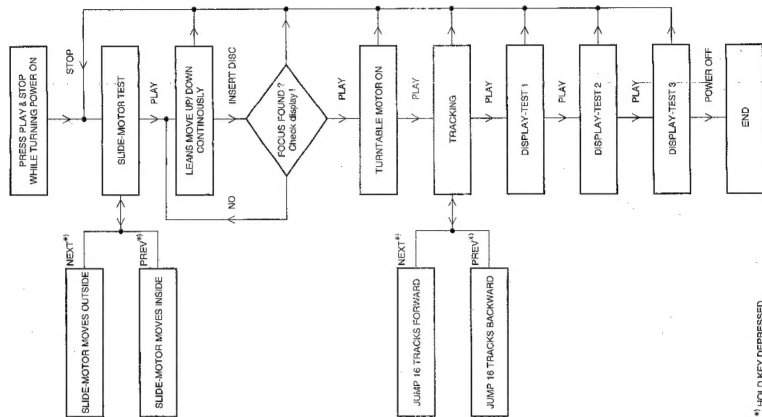
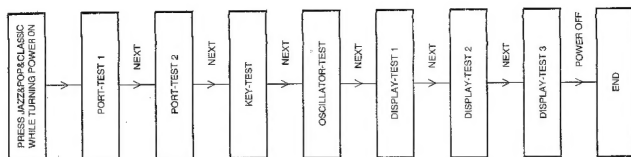
5. FACTORY STEP 5 - DISPLAY TEST 1
Display is as shown in fig. 6. All vertical segments, all sound-feature flags and the hold flags are activated. To get into service step 6 press the **PLAY** button, to return to service step 1 press **STOP**.

6. FACTORY STEP 6 - DISPLAY TEST 2
Display is as shown in fig. 7. All horizontal segments and all sound-feature flags are activated. To get into service step 7 press the **PLAY** button, to return to service step 1 press **STOP**.

7. FACTORY STEP 7 - DISPLAY TEST 3
Display is as shown in fig. 8. All existing segments are active. To leave the service test program disconnect the set from the power supply, to return to service step 1 press **STOP**.

* HOLD KEY DEPRESSED

FACTORY TEST PROGRAM



SERVICE TEST PROGRAM

FACTORY TEST PROGRAM

OK and slide control
segments are active
while turning power on
and special functions
ward/backward press the

Y button, to return to

segments, all sound-

ward, to return to

tail segments and all

Y button, to return to

3 segments are active

need the set from the

press STOP.

ST
900 (22/76 H-9) and 5501
the display is as shown in
T button.

segments, all sound-

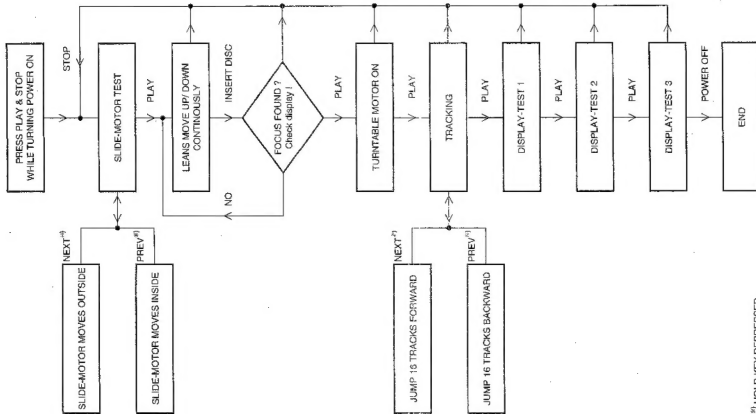
ward, to return to

tail segments and all

Y button.

3 segments are active

need the set from the



⁹⁾ HOLD KEY DEPRESSED

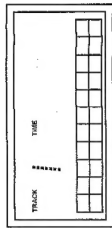


Fig. 1

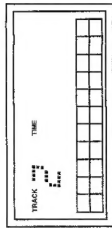


Fig. 2

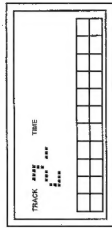


Fig. 3

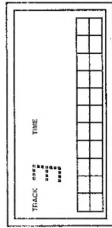


Fig. 4

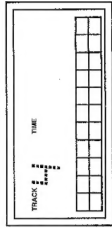


Fig. 5

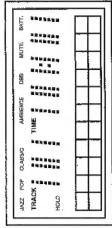


Fig. 6

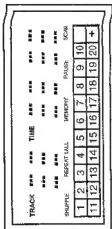


Fig. 7

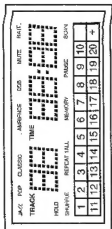


Fig. 8

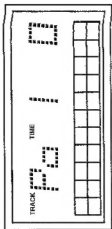


Fig. 9

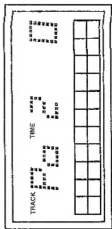


Fig. 10

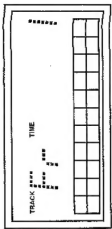


Fig. 11

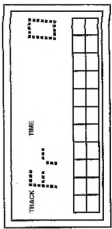


Fig. 12

FIG. 2










FIG. 3

SERVICE - TOOLS

- General**
A completely new adjustment of the cd-part is absolutely necessary if the optical pickup unit (OPU) or semiconductors of the servo control circuits have been replaced.
- Focus gain / Tracking gain**
To adjust the focus- and tracking-control circuit use the measure described in chapter 1 according to fig. 1 resp. fig. 2. Set the oscilloscope to X deflection. The screen will show an ellipse.
- Track balance**
Necessary to balance the different sensibilities of the track-diodes.

- Adjustment of charge-circuit**
Use a 220 Ω resistor instead of the accu. Adjust Ucharge to 4.6 V ± 50 mV via R 3258. Exchange the 220 Ω resistor by a 33 Ω and measure Ucharge. The voltage must not exceed 5 V ± 100 mV. Otherwise the charge circuit doesn't work correct and has to be checked. CAUTION! If the measured voltage was not within the specification you **must** not reduce the voltage via R 3258 !, if done the accu could overload and explode!

SYSTEM-CODES 20 AND 21 ARE RECOGNIZED (CD AND COMBI)			
KEY	COMMAND CODE	KEY	COMMAND CODE
MUTE	13	FAST BACKWARD	50
VOLUME UP	16	FAST FORWARD	52
VOLUME DOWN	17	PLAY	53
SHUFFLE	28	STOP / CLEAR PROGRAM	54
REPEAT ALL	29	AMBIENCE	64
SKIP FORWARD	32	JAZZ	67
SKIP BACKWARD	33	POP	68
STORE	41	CLASSIC	69
INTRO SCAN	43	DBB	70
PAUSE	48	DEFEAT	72

CHARGE-CIRCUIT					
CHARGE VOLTAGE					
Service step 1		 	3258	RL = 220 Ω Adjust to 4.8 V DC ± 50 mV	
		 	Check only	RL = 33 Ω Ucharge = 5V DC ± 100 mV	

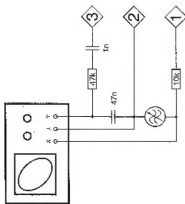


FIG. 1

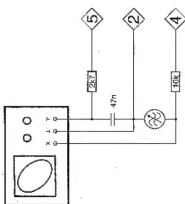


FIG. 2

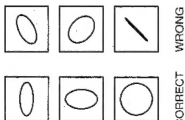


FIG. 3

ADJUSTMENT REMARKS

- General
A completely new adjustment of the cd-part is absolutely necessary if the optical pick-up unit (OPU) or semiconductors of the servo control circuits have been replaced.

- Focus gain / Tracking gain

circuit according to fig. 1 resp. fig. 2. Set the oscilloscope to X-deflection. The screen will show an ellipse.

- Track balance

Necessary to balance the different sensitivities of the track-diodes.

- +5V adjustment

This adjustment is foreseen in a few sets only.

- Adjustment of charge-circuit

Use a 220 Ω resistor instead of the accu. Adjust Ucharge to 4,6 V and ± 50 mV via R 3258. Exchange the 220 Ω resistor by a 33 Ω and measure Ucharge. The voltage **must** not exceed 5 V \pm 100 mV. Otherwise the charge circuit doesn't work correct and has to be checked. CAUTION: If the measured voltage was not within the specification you **must** not reduce the voltage via R 3258! - if done the accu could overload and explode!

BC 5 - CODE

SYSTEM CODES 20 AND 21 ARE RECOGNIZED (CD AND COMBI)			
KEY	COMMAND CODE	KEY	COMMAND CODE
MUTE	13	FAST BACKWARD	50
VOLUME UP	16	FAST FORWARD	52
VOLUME DOWN	17	PLAY	53
SHUFFLE	28	STOP / CLEAR PROGRAM	54
REPEAT ALL	29	AMBIENCE	64
SKIP FORWARD	32	JAZZ	67
SKIP BACKWARD	33	POP	68
STORE	41	CLASSIC	69
INTRO SCAN	43	DBB	70
PAUSE	48	DEFEAT	72

ABBREVIATIONS

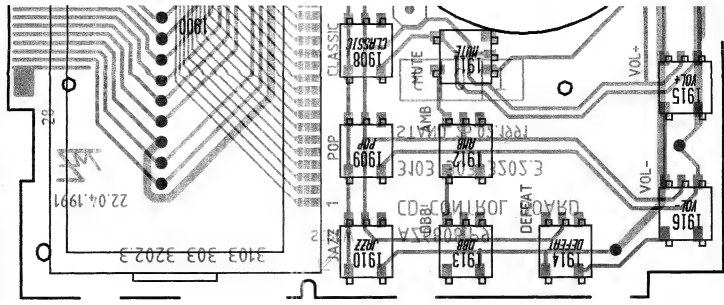
- | | | |
|--------------------------------|-------------------------|------------------------------------|
| A ₀ -F ₇ | Protections: all inputs | COM interface register clear input |
| AGL ₀ | All clear input | |
| AGL ₁ | Clear memory input | |
| AGL ₂ | Clear memory input | |
| AGL ₃ | Clear memory input | |
| AGL ₄ | Clear memory input | |
| AGL ₅ | Clear memory input | |
| AGL ₆ | Clear memory input | |
| AGL ₇ | Clear memory input | |
| AGL ₈ | Clear memory input | |
| AGL ₉ | Clear memory input | |
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| AGL ₈₄ | Clear memory input | |
| AGL ₈₅ | Clear memory input | |
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| AGL ₁₂₃ | Clear memory input | |
| AGL ₁₂₄ | Clear memory input | |
| AGL ₁₂₅ | Clear memory input | |

- | | |
|---------|--|
| SECO | Subcode 0 channel output |
| SECR | Subcode R channel output |
| SEOS | Subcode S channel output |
| SECT | Subcode T channel output |
| SECV | Subcode V channel output |
| SEWC | Subcode W channel output |
| SECK | Shift clock input for serial subcode data output |
| SECH | Enable input of subcode 0 channel output |
| SECI | Enable input of subcode P-S channel output |
| SECE | Subcode sync. output |
| SECR | Stock detector signal input |
| SECH | Stock detector signal input |
| SECI | Subcode 0 register output |
| SECO | Subcode 0 register output |
| SEOS | Sledge servo amplifier output |
| SEST | Sledge servo amplifier positive / negative input |
| SESS | Frame lock status output (Look = 75°) |
| SYCLK | Track cross signal input |
| TCIN | Track cross signal input |
| TEIN | Track error amplifier input |
| TEOUT | Track error amplifier output |
| TEST1 | Test error amplifier negative input |
| TS1/T02 | Tracking gun switch, 1/2 output |
| TLC | Output from alsa level control |
| THLD | Direct control of 1° TS1 switch |
| TS1 | Track servo amplifier output |
| TS2 | Track servo amplifier positive / negative input |
| VCC | Positive supply voltage |
| VDD | Positive supply voltage |
| VEE | Negative supply voltage |
| VSS | Negative supply voltage |
| WSS | Sound DV |
| WCK | Word clock to DAC or APTL clock |
| WE | Write enabled input |
| WS | Word selected input |
| XI | Crystal oscillator input with internal feedback |
| XO | Crystal oscillator output |

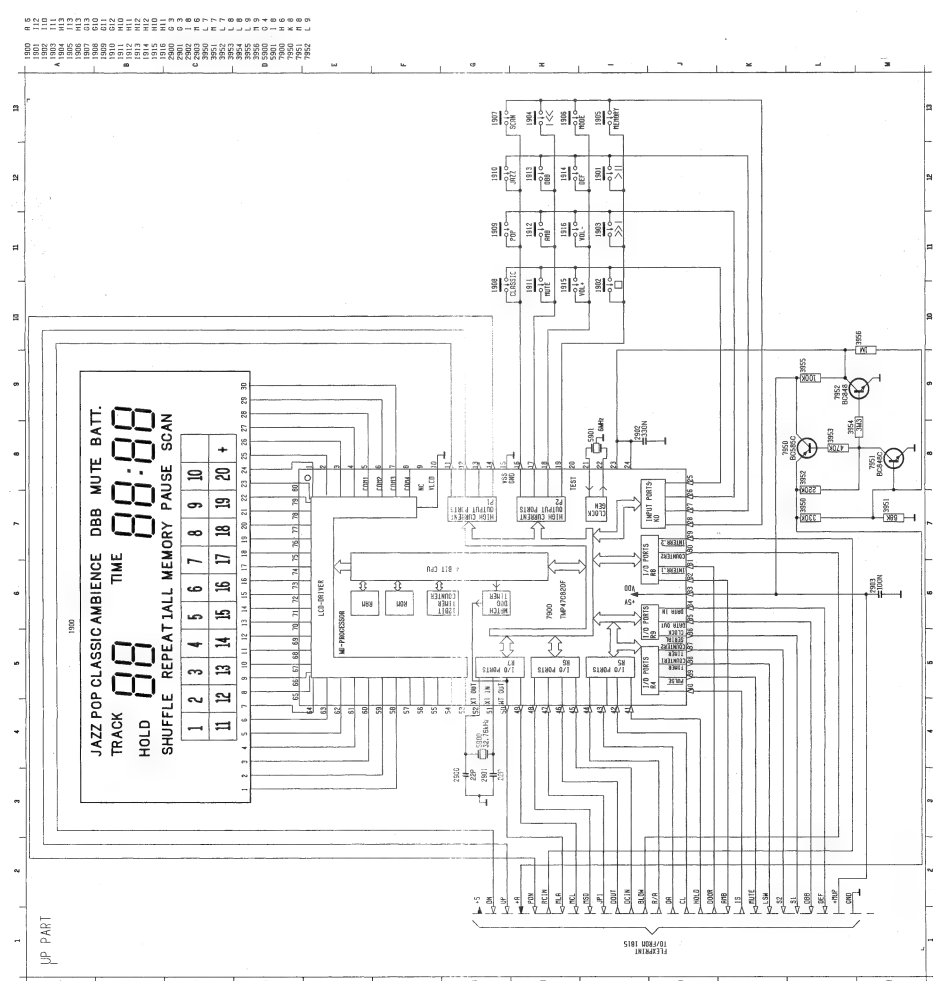
* 1LOG. "0" ACTIVE!

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CONTROL BOARD / COMPONENT



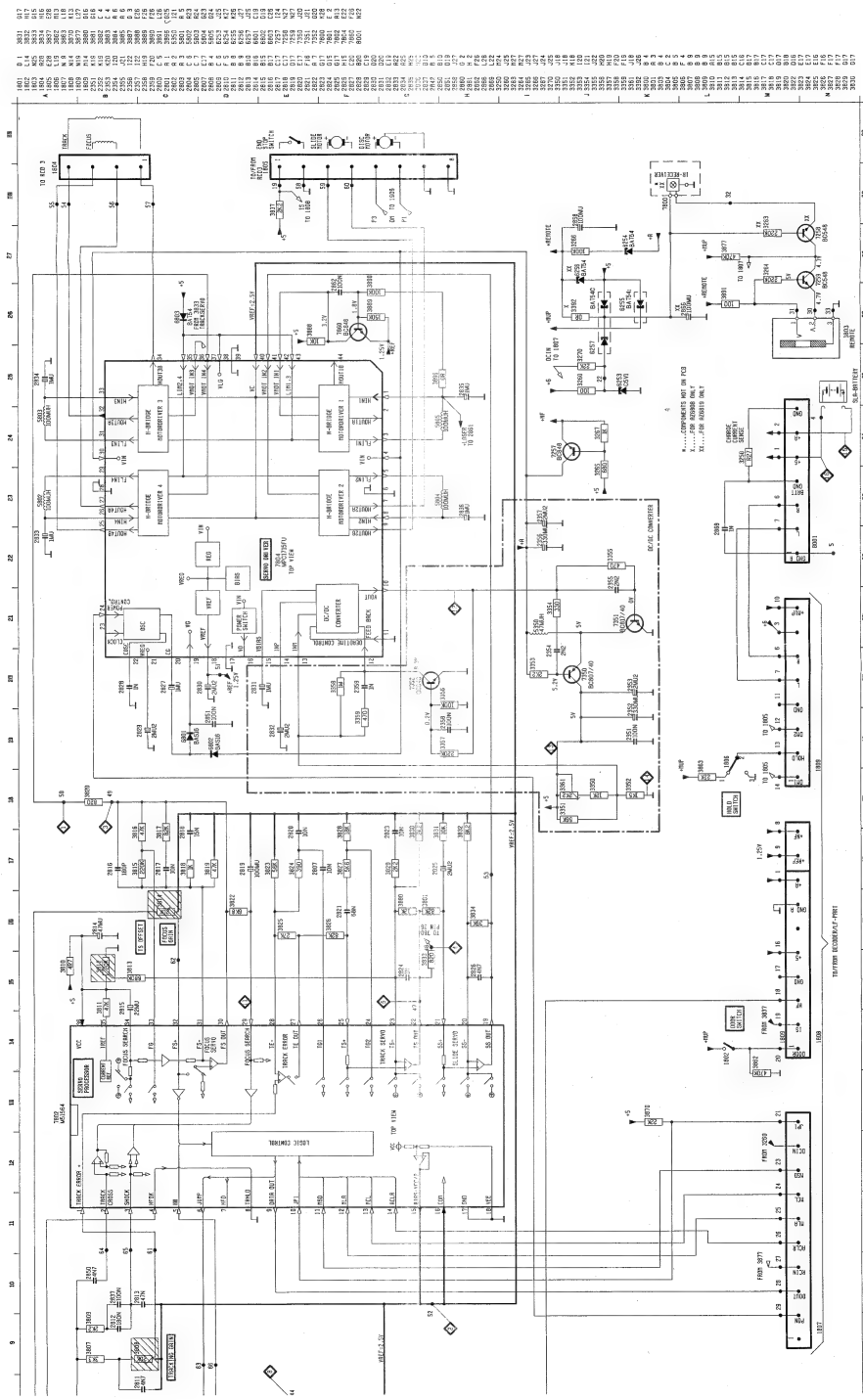
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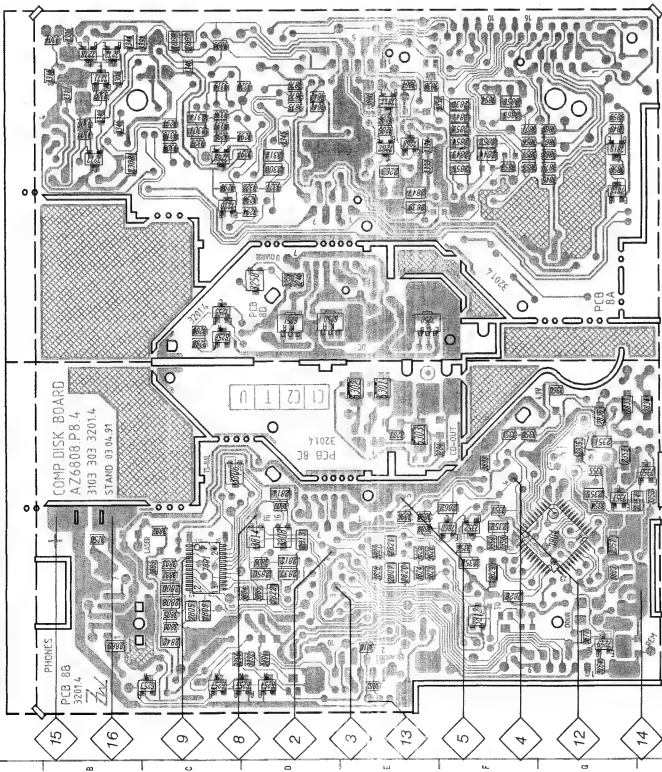
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16 17 C\$ 45 519

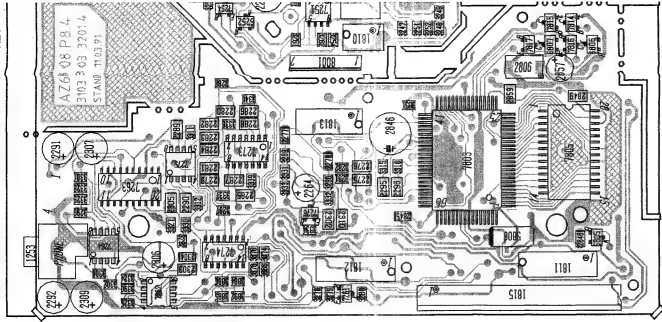


COMP.DISK BOARD / COPPERSIDE NEW / AZ6808



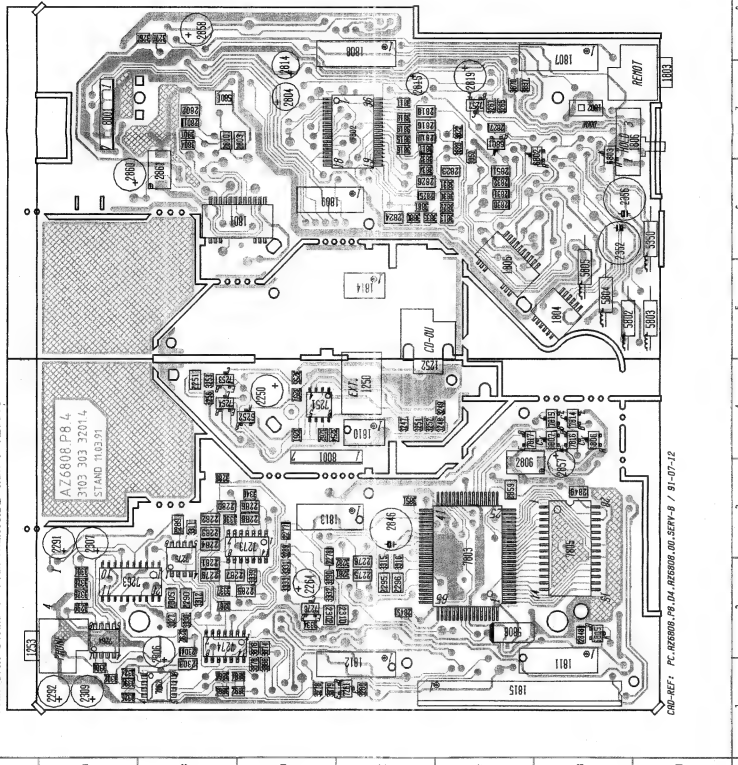
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COMP.DISK BOARD / COMPONENTSIDE NET / AZ6808



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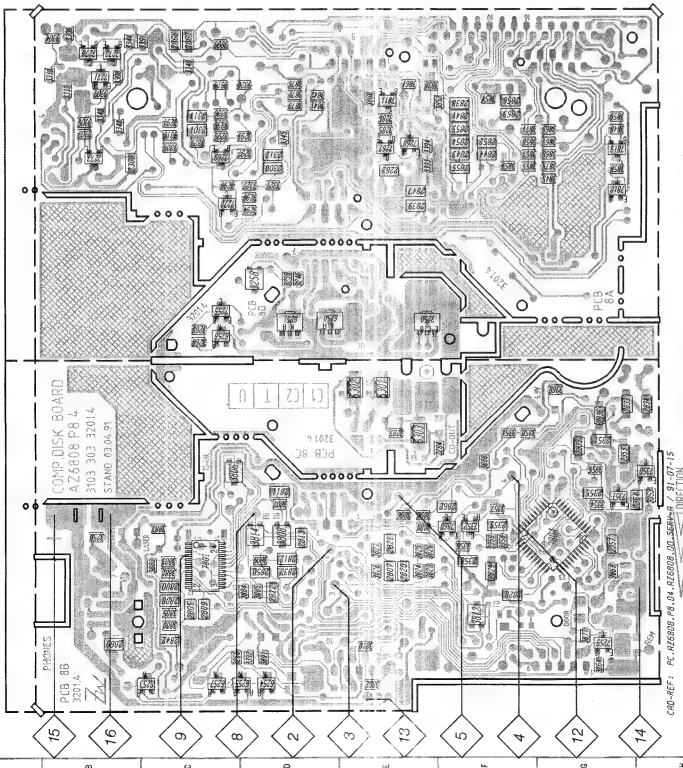
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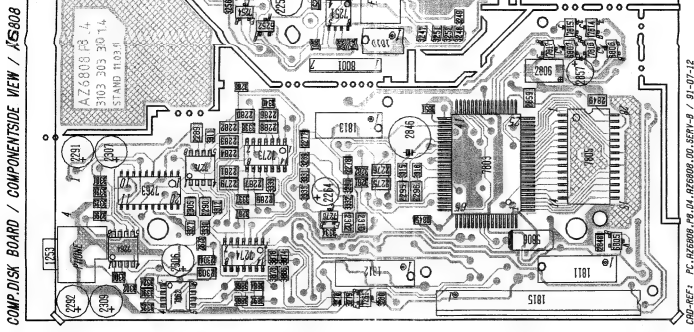
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COMP DISK BOARD / COPPERSIDE NEW / AZ6808

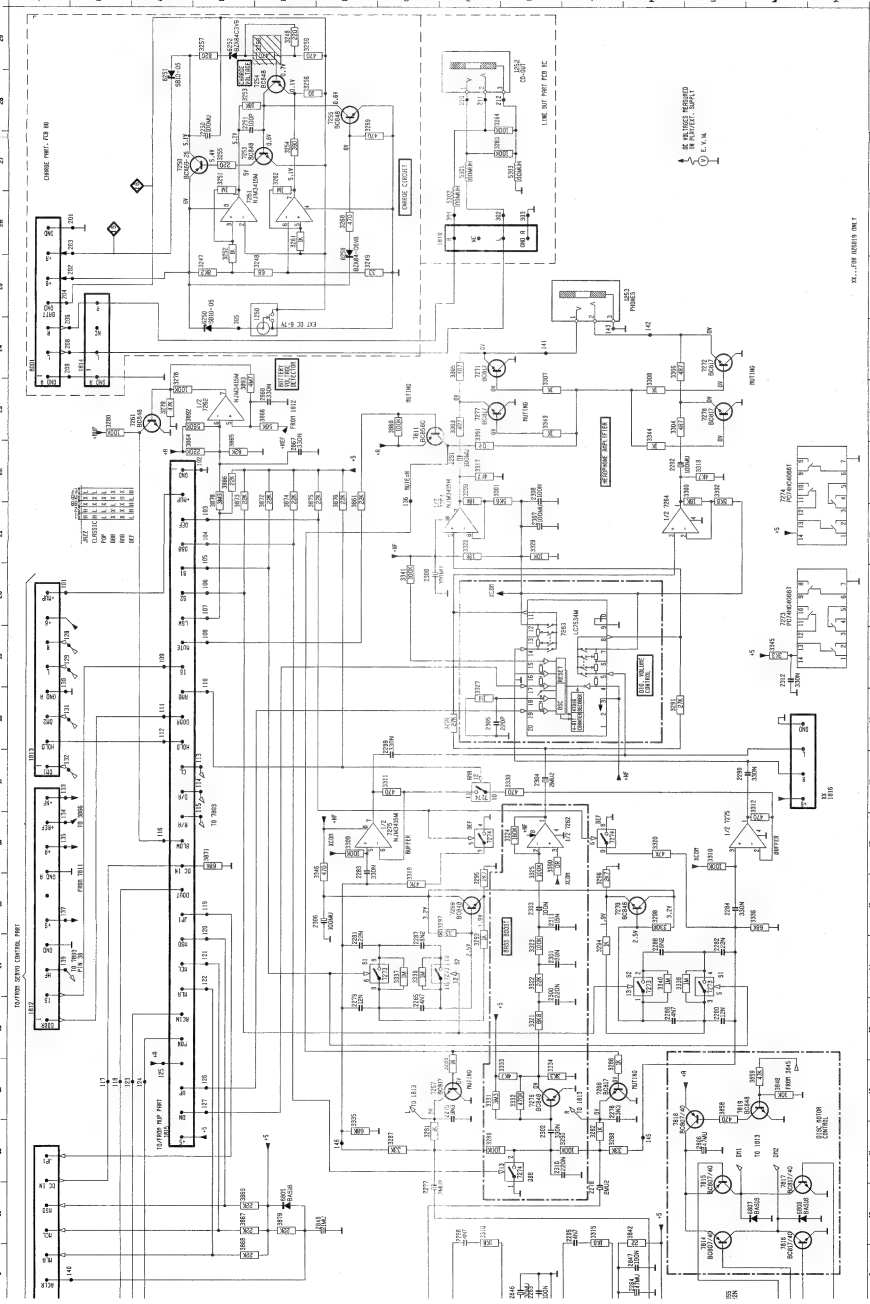


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256						

123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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CHIP RESISTORS

3280	4822 051 20104	100k	5%	0.1W		3344	4822 051 10102	1k	2%	0.25W
3281	4822 051 10102	1k	2%	0.25W		3345	4822 051 20132	3k3	5%	0.1W
3282	4822 051 10102	1k	2%	0.25W		3346	4822 051 20471	470k	5%	0.1W
3283	4822 051 20104	100k	5%	0.1W		3350	4822 051 20823	82k	5%	0.1W
3284	4822 051 20104	100k	5%	0.1W		3351	4822 116 83256	12k	2%	0.1W
3285	4822 051 10102	1k	2%	0.25W		3352	4822 116 83225	14k	2%	0.1W
3286	4822 051 10102	1k	2%	0.25W		3353	4822 051 20222	2k2	5%	0.1W
3287	4822 051 20333	33k	5%	0.1W		3354	4822 051 20331	330k	5%	0.1W
3288	4822 051 20333	33k	5%	0.1W		3355	4822 051 20471	470k	5%	0.1W
3289	4822 051 20104	100k	5%	0.1W		3356	4822 051 20104	100k	5%	0.1W
3290	4822 051 20104	100k	5%	0.1W		3357	4822 051 20224	220k	5%	0.1W
3291	4822 051 20273	27k	5%	0.1W		3358	4822 051 20135	14k	5%	0.1W
3292	4822 051 20273	27k	5%	0.1W		3359	4822 051 20471	470k	5%	0.1W
3293	4822 051 10102	1k	2%	0.25W		3360	4822 051 20008	CHIP JUMPER		
3294	4822 051 10102	1k	2%	0.25W		3390	4822 051 20008	CHIP JUMPER		
3295	4822 051 20272	2k7	5%	0.1W		3391	4822 051 20008	CHIP JUMPER		
3296	4822 051 20272	2k7	5%	0.1W		3392	4822 051 20008	CHIP JUMPER		
3297	4822 051 20334	330k	5%	0.1W		3393	4822 051 20008	CHIP JUMPER		
3298	4822 051 20334	330k	5%	0.1W		3394	4822 051 20008	CHIP JUMPER		
3299	4822 051 20183	18k	5%	0.1W		3600	4822 051 22023	22k	5%	0.1W
3300	4822 051 20183	18k	5%	0.1W		3801	4822 051 10102	1k	2%	0.25W
3301	4822 051 20562	56k	5%	0.1W		3803	4822 051 20135	15k	5%	0.1W
3302	4822 051 20562	56k	5%	0.1W		3804	4822 051 20154	150k	5%	0.1W
3303	4822 051 20478	4k7	5%	0.1W		3805	4822 051 20472	4k7	5%	0.1W
3304	4822 051 20478	4k7	5%	0.1W		3806	4822 100 11733	20k TRIM POT SMD		
3305	4822 051 20478	4k7	5%	0.1W		3807	4822 051 20332	3k3	5%	0.1W
3306	4822 051 20479	4k7	5%	0.1W		3808	4822 100 11733	20k TRIM POT SMD		
3307	4822 051 20479	4k7	5%	0.1W		3809	4822 051 20222	2k2	5%	0.1W
3308	4822 051 10102	1k	2%	0.25W		3810	4822 051 20478	4k7	5%	0.1W
3309	4822 051 20104	100k	5%	0.1W		3811	4822 051 20473	47k	5%	0.1W
3310	4822 051 20104	100k	5%	0.1W		3812	4822 100 11733	20k TRIM POT SMD		
3311	4822 051 20471	470k	5%	0.1W		3813	4822 051 20684	680k	5%	0.1W
3312	4822 051 20471	470k	5%	0.1W		3814	4822 100 11733	20k TRIM POT SMD		
3313	4822 051 20182	1k8	5%	0.1W		3815	4822 051 22024	220k	5%	0.1W
3314	4822 051 20182	1k8	5%	0.1W		3816	4822 051 20473	47k	5%	0.1W
3315	4822 051 20472	4k7	5%	0.1W		3817	4822 051 20823	82k	5%	0.1W
3316	4822 051 20472	4k7	5%	0.1W		3818	4822 051 20471	470k	5%	0.1W
3317	4822 051 20472	4k7	5%	0.1W		3819	4822 051 20333	33k	5%	0.1W
3318	4822 051 20472	4k7	5%	0.1W		3820	4822 051 20821	820k	5%	0.1W
3319	4822 051 20473	47k	5%	0.1W		3822	4822 051 20682	6k8	5%	0.1W
3320	4822 051 20473	47k	5%	0.1W		3823	4822 051 20563	56k	5%	0.1W
3321	4822 051 20682	6k8	5%	0.1W		3824	4822 051 20391	390k	5%	0.1W
3322	4822 051 20223	22k	5%	0.1W		3825	4822 051 20273	27k	5%	0.1W
3323	4822 051 20104	100k	5%	0.1W		3826	4822 051 20823	82k	5%	0.1W
3324	4822 051 20184	180k	5%	0.1W		3827	4822 051 20562	56k	5%	0.1W
3325	4822 051 20104	100k	5%	0.1W		3828	4822 051 20183	18k	5%	0.1W
3326	4822 051 20135	14k	5%	0.1W		3829	4822 051 20222	2k2	5%	0.1W
3327	4822 051 20135	14k	5%	0.1W		3830	4822 051 20222	2k2	5%	0.1W
3328	4822 051 20123	12k	2%	0.1W		3831	4822 051 20103	10k	5%	0.1W
3329	4822 051 20103	10k	5%	0.1W		3832	4822 051 20822	8k2	5%	0.1W
3330	4822 051 20471	470k	5%	0.1W		3833	4822 051 20821	820k	5%	0.1W
3331	4822 051 20335	33k	5%	0.1W		3834	4822 051 20393	39k	5%	0.1W
3332	4822 051 20474	470k	5%	0.1W		3837	4822 051 20222	2k2	5%	0.1W
3333	4822 051 20472	4k7	5%	0.1W		3838	4822 051 20182	1k8	5%	0.1W
3334	4822 051 20332	3k3	5%	0.1W		3841	4822 051 20478	4k7	5%	0.1W
3335	4822 051 20683	6k8	5%	0.1W		3842	4822 051 20229	22k	5%	0.1W
3336	4822 051 20683	6k8	5%	0.1W		3845	4822 051 20478	4k7	5%	0.1W
3337	4822 051 20135	14k	5%	0.1W		3848	4822 051 20103	10k	5%	0.1W
3338	4822 051 20135	14k	5%	0.1W		3851	4822 051 20223	22k	5%	0.1W
3339	4822 051 20135	14k	5%	0.1W		3852	4822 051 20223	22k	5%	0.1W
3340	4822 051 20135	14k	5%	0.1W						
3341	4822 051 20104	100k	5%	0.1W						
3342	4822 051 10102	1k	2%	0.25W						
3343	4822 051 10102	1k	2%	0.25W						

CHIP RESISTORS									
3853	4822 051 20751	750R	5%	0.1W	3874	4822 051 20223	22k	5%	0.1W
3854	4822 051 20135	1M	5%	0.1W	3875	4822 051 20223	22k	5%	0.1W
3855	4822 051 20223	22k	5%	0.1W	3876	4822 051 20223	22k	5%	0.1W
3856	4822 051 20223	22k	5%	0.1W	3877	4822 051 20474	470k	5%	0.1W
3857	4822 051 20223	22k	5%	0.1W	3878	4822 051 20335	3M	5%	0.1W
3858	4822 051 20471	470R	5%	0.1W	3879	4822 051 20223	22k	5%	0.1W
3859	4822 051 20473	47k	5%	0.1W	3880	4822 051 20123	12k	5%	0.1W
3860	4822 051 20104	100k	5%	0.1W	3881	4822 051 20823	82k	5%	0.1W
3861	4822 051 20223	22k	5%	0.1W	3882	4822 051 20153	15k	5%	0.1W
3862	4822 051 20474	470k	5%	0.1W	3883	4822 051 20153	15k	5%	0.1W
3863	4822 051 20223	22k	5%	0.1W	3884	4822 051 20103	10k	5%	0.1W
3864	4822 051 20223	22k	5%	0.1W	3885	4822 051 20334	330k	5%	0.1W
3865	4822 116 83323	220k	2%		3886	4822 051 20223	22k	5%	0.1W
3866	4822 116 83322	120k	2%		3887	4822 051 20332	3k3	5%	0.1W
3867	4822 051 20563	56k	5%	0.1W	3888	4822 051 20103	10k	5%	0.1W
3867	4822 051 20223	22k	5%	0.1W	3889	4822 051 20154	150k	5%	0.1W
3868	4822 051 20223	22k	5%	0.1W	3890	4822 051 20104	100k	5%	0.1W
3869	4822 051 20223	22k	5%	0.1W	3891	4822 051 20101	100R	5%	0.1W
3870	4822 051 20223	22k	5%	0.1W	3892	4822 051 20564	560k	5%	0.1W
3871	4822 051 20683	68k	5%	0.1W	3893	4822 051 20475	4k7	5%	0.1W
3872	4822 051 20223	22k	5%	0.1W	3896	4822 051 20008	CHIP JUMPER		
3873	4822 051 20223	22k	5%	0.1W					
CAPACITORS									
2250	4822 124 42241	100pF	20%	6.3V	2356	4822 124 42242	330pF	20%	6.3V
2264	4822 124 42256	47pF	10%	6.3V	2359	4822 122 31746	1nF	5%	50V
2275	5322 122 33446	3.3pF	10%	63V	2803	4822 122 33064	330nF	20%	25V
2276	5322 122 33146	1.2pF	10%	63V	2804	4822 124 42256	47pF	5%	6.3V
2283	4822 124 33064	330pF	20%	25V	2805	4822 124 42257	47pF	5%	6.3V
2284	4822 122 33064	330pF	20%	25V	2814	4822 124 42256	47pF	5%	6.3V
2289	4822 122 31065	330pF	20%	25V	2815	4822 124 42256	22pF	20%	6.3V
2290	4822 122 33064	330pF	20%	25V	2819	4822 124 42241	100pF	20%	6.3V
2291	4822 124 42241	100pF	20%	6.3V	2828	4822 122 31746	1nF	5%	50V
2292	4822 124 42241	100pF	20%	6.3V	2846	4822 124 42242	330pF	20%	6.3V
2302	4822 122 33064	330pF	20%	25V	2856	4822 122 32444	33pF	5%	50V
2306	4822 124 42241	100pF	20%	6.3V	2857	4822 124 42256	47pF	5%	6.3V
2307	4822 124 42241	100pF	20%	6.3V	2858	4822 124 42241	100pF	20%	6.3V
2309	4822 124 42241	100pF	20%	6.3V	2860	4822 124 42241	100pF	20%	6.3V
2312	4822 122 33064	330pF	20%	25V	2867	4822 122 33064	330nF	20%	25V
2352	4822 124 42242	330pF	20%	6.3V	2868	4822 122 33064	330nF	20%	25V
CHIP CAPACITORS									
2251	4822 122 31765	100pF	5%	50V	2305	4822 122 31965	220pF	5%	63V
2263	4822 122 33496	100pF	10%	63V	2308	4822 122 33496	100pF	10%	63V
2277	4822 124 10965	2.2pF	20%	6.3V	2310	4822 122 32927	220pF	10%	63V
2278	4822 124 10965	2.2pF	20%	6.3V	2311	4822 122 31762	150pF	10%	50V
2279	5322 122 33648	12nF	10%	50V	2331	4822 122 33496	100pF	10%	63V
2280	5322 122 31648	12nF	10%	50V	2353	4822 124 10965	2.2pF	20%	6.3V
2281	4822 122 31797	22nF	10%	63V	2354	4822 122 31644	2.2pF	10%	63V
2282	4822 122 31797	22nF	10%	63V	2355	4822 122 31644	2.2pF	10%	63V
2285	4822 122 31784	4.7nF	10%	50V	2357	4822 124 10965	2.2pF	20%	6.3V
2286	4822 122 31784	4.7nF	10%	50V	2358	4822 122 33496	100pF	10%	63V
2287	4822 122 32856	8.2nF	10%	63V	2800	4822 122 31769	18pF	5%	50V
2288	4822 122 32856	8.2nF	10%	63V	2801	4822 124 10965	2.2pF	20%	6.3V
2295	4822 122 31784	4.7nF	10%	50V	2802	4822 122 31797	22nF	10%	63V
2296	4822 122 31784	4.7nF	10%	50V	2805	4822 122 33496	100pF	10%	63V
2300	4822 122 32927	220pF	10%	63V	2807	4822 122 32442	10nF	10%	50V
2301	4822 122 32891	68nF	10%	63V	2808	4822 122 31916	5.6nF	10%	63V
2303	4822 122 33496	100pF	10%	63V	2809	4822 122 32891	68nF	10%	63V
2304	4822 124 10965	2.2pF	20%	6.3V	2810	4822 122 32142	270pF	5%	63V

CHIP CAPACITORS									
2811	4822 122 31784	4.7nF	10%	50V	2837	4822 122 33496	100nF	10%	63V
2812	4822 126 11499	180nF	20%	50V	2838	4822 122 31971	10nF	10%	50V
2813	4822 122 32542	47nF	10%	63V	2839	4822 122 33496	100nF	10%	63V
2816	4822 122 31768	180nF	5%	50V	2841	4822 122 33496	100nF	10%	63V
2817	4822 122 32442	10nF	10%	50V	2842	4822 122 31644	2.2nF	10%	63V
2818	4822 122 32597	6.8nF	10%	63V	2843	4822 122 32442	10nF	10%	50V
2820	4822 122 32442	10nF	10%	50V	2844	5322 122 32838	82nF	10%	63V
2821	4822 122 32891	68nF	10%	63V	2845	4822 124 10945	2.2nF	20%	6.3V
2822	4822 122 33496	100nF	10%	63V	2847	4822 122 33496	100nF	10%	63V
2823	4822 122 32442	10nF	10%	50V	2848	5322 124 10798	1nF	20%	16V
2824	5322 122 31647	1nF	10%	63V	2849	4822 122 33496	100nF	10%	63V
2825	4822 124 10955	2.2nF	20%	6.3V	2850	4822 122 31784	4.7nF	10%	50V
2826	4822 122 31784	4.7nF	10%	50V	2851	4822 122 33496	100nF	10%	63V
2827	5322 124 10798	1nF	20%	16V	2852	4822 122 33496	100nF	10%	63V
2829	4822 124 10955	2.2nF	20%	6.3V	2853	4822 122 33496	100nF	10%	63V
2830	4822 124 10955	2.2nF	20%	6.3V	2854	4822 122 33496	100nF	10%	63V
2831	5322 124 10955	1nF	20%	16V	2855	4822 122 31797	22nF	10%	63V
2832	4822 124 10955	2.2nF	20%	6.3V	2859	4822 122 33496	100nF	10%	63V
2833	5322 124 10798	1nF	20%	16V	2861	4822 124 41897	100nF	20%	4V
2834	5322 124 10798	1nF	20%	16V	2862	4822 122 33496	100nF	10%	63V
2835	5322 124 10798	1nF	20%	16V	2863	4822 122 33496	100nF	10%	63V
2836	5322 124 10798	1nF	20%	16V	2869	5322 122 31647	1nF	10%	63V